CLAIMS

1. A system for assisting the regeneration of depollution means (1) integrated in an exhaust line (3) of a motor vehicle diesel engine (4), in which the engine is
5 associated with a turbocharger (5, 6) and with common rail feed means (7) for injecting fuel into the cylinders of the engine in at least one post-injection, and adapted to implement, at constant torque, at least two regeneration strategies (10, 11) at a first level and at
10 a second level, depending on different engine operation control parameters, in order to obtain different temperature levels in the exhaust line, the temperature level corresponding to the second level strategy (10) being higher than the temperature level corresponding to
15 the first level (11), the system being characterized in that it includes acquisition means (9) for acquiring the temperature level in the exhaust line, comparator means (8) for comparing said temperature level with a safety threshold value for the turbine (5) of the turbocharger
20 so that in the event of said threshold value being exceeded while applying the second level strategy (10), the feed means (7) are controlled so as to regulate at least one of the engine operation control parameters progressively so as to reduce the temperature level in
25 the exhaust line (3), and if said temperature level does not drop below the threshold value at the end of a predetermined first time period, the feed means (7) are controlled to switch over to the first level strategy, and if the temperature level in the exhaust line still
30 does not drop below the safety threshold value at the end of a second time period, the feed means (7) are controlled to stop the regeneration strategy.

2. A system according to claim 1, characterized in that
35 the feed means (7) are adapted to implement two successive post-injections.

3. A system according to claim 2, characterized in that during regulation, the feed means (7) are adapted to reduce progressively the flow rate of fuel during the second post-injection.

4. A system according to claim 3, characterized in that the feed means (7) are adapted to reduce the flow rate of the second post-injection by using a correction factor lying in the range 0 to 1 and determined on the basis of the difference between the temperature level acquired from the exhaust line and the safety threshold value.

5. A system according to claim 4, characterized in that the correction factor is determined by a PI type regulator (13) having non-linear gain.

6. A system according to any preceding claim, characterized in that the temperature level acquisition means comprise at least one temperature sensor (9).

7. A system according to any preceding claim, characterized in that the safety threshold value is calibratable.

8. A system according to any preceding claim, characterized in that the depollution means (1) comprise a particle filter.

9. A system according to any preceding claim, characterized in that the depollution means (1) comprise a NOx trap.

10. A system according to any preceding claim, characterized in that the depollution means (1) comprise a SOx trap.

11. A system according to any preceding claim, characterized in that the depollution means (1) comprise an oxidation catalyst.

5   12. A system according to any preceding claim, characterized in that the fuel includes an additive for being deposited, together with the particles with which it is mixed, on the depollution means in order to facilitate regeneration thereof.

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13. A system according to any one of claims 1 to 11, characterized in that the fuel includes an additive forming a NOx trap.